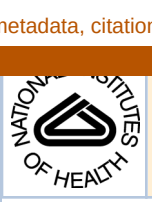

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Adolescent Dose and Ratings of an Internet-Based Depression Prevention Program: A Randomized Trial of Primary Care Physician Brief Advice versus a Motivational Interview

Benjamin W. Van Voorhees, MD, MPH[1,2,3], **Joshua Fogel, PhD**[4], **Benjamin E. Pomper, BA**[1], **Monika Marko, BS**[1], **Nicholas Reid, BA**[1], **Natalie Watson, BA**[1], **John Larson, PhD**[5], **Nathan Bradford, MD**[6], **Blake Fagan, MD**[7], **Steve Zuckerman, PhD**[8], **Peggy Wiedmann, MD**[8], and **Rocco Domanico, PhD**[9]

[1] Department of Medicine, The University of Chicago, Chicago, Illinois, USA

[2] Department of Psychiatry, The University of Chicago, Chicago, Illinois, USA

[3] Department of Pediatrics, The University of Chicago, Chicago, Illinois, USA

[4] Department of Economics, Brooklyn College of the City University of New York, Brooklyn, New York, USA

[5] Department of Psychology, Illinois Institute of Technology, Chicago, Illinois, USA

[6] Department of Family Medicine, Anderson Area Medical Center, Anderson, South Carolina, USA

[7] Department of Family Medicine, University of North Carolina—Chapel Hill at the Mountain Area Health Education Center, Asheville, North Carolina, USA

[8] Advocate Healthcare, Chicago, Illinois, USA

[9] Department of Psychiatry, John C. Stroger Cook County Hospital, Chicago, Illinois, USA

Abstract

Background—Internet-based interventions for education and behavior change have proliferated, but most adolescents may not be sufficiently motivated to engage in Internet-based behavior change interventions. We sought to determine how two different forms of primary care physician engagement, brief advice (BA) versus motivational interview (MI), could enhance participation outcomes in an Internet-based depression prevention intervention.

Methods—Eighty-three adolescents at risk for developing major depression were recruited by screening in primary care and randomized to two groups: BA (1–2 minutes) + Internet program versus MI (10–15 minutes) + Internet program. We compared measures of participation and satisfaction for the two groups for a minimum of 12 months after enrollment.

Results—Both groups engaged the site actively (MI: 90% versus BA: 78%, p=0.12). MI had significantly higher levels of engagement than BA for measures including total time on site (143.7

Corresponding Author: Benjamin Van Voorhees MD, MPH, Section of General Internal Medicine, Department of Medicine, The University of Chicago, 5841 South Maryland Blvd, Chicago, Illinois 60637, USA, Phone: 773.702.3835, Fax:773.834.2238, bvanvoor@medicine.bsd.uchicago.edu.

Disclosures: Benjamin W. Van Voorhees has served as a consultant to Prevail Health Solutions, Inc and the University of Hong Kong to develop Internet-based interventions. *The CATCHIT intervention reported here is not related to any proprietary company and will be made freely available to the public. Dr. Van Voorhees has provided advice to these organizations so they can develop their own un-related interventions*

minutes versus 100.2 minutes, p=0.03), number of sessions (8.16 versus 6.00, p=0.04), longer duration of session activity on Internet site (46.2 days versus 29.34 days, p=0.04), and with more characters typed into exercises (3532 versus 2004, p=0.01). Adolescents in the MI group reported higher trust in their physician (4.18 versus 3.74, p=0.05) and greater satisfaction with the Internet-based component (7.92 versus 6.66, p=0.01).

Conclusions—Primary care engagement, particularly using motivational interviewing, may increase Internet use dose, and some elements enhance and intensify adolescent use of an Internet-based intervention over a one to two month period. Primary care engagement may be a useful method to facilitate adolescent involvement in preventive mental health interventions.

Keywords

depressive disorder; adolescents; prevention; Internet; primary care; intervention; motivational interview; brief advice

Introduction

The Internet is a promising modality for delivery of preventive interventions for adolescents in primary care (Crutzen et al., 2008; Van Voorhees et al., 2007). Adolescents with obesity, smoking, alcohol use, HIV/AIDS risk, and sexual risk taking have achieved website visit rates of 45% to 96% and favorable behavior change in studies of motivated volunteers (Kirk et al. 2003; Lou, Zhao, Gao, & Shah, 2006; Patten et al., 2006; Ybarra, Kiwanuka, Emenyonu, & Bangsberg, 2006). Similar interventions may be effective in increasing levels of exercise, adopting a more favorable diet, stopping smoking, and reducing depressed mood in adults (Van den Berg, Schoones, & Vliet Vlieland, 2007; Walters, Wright, & Shegog, 2006; Wantland, Portillo, Holzemer, Slaughter, & McGhee, 2004a). However, unlike motivated study participants, less than 20% of the general population are interested in Internet-based lifestyle change and as few as 10% may visit such websites (Evers, Cummins, Prochaska, & Prochaska, 2005; Verheijden, Jans, Hildebrandt, & Hopman-Rock, 2007). Use of mental health related websites by adolescents is similarly low (Clarke et al., 2002; Patten, 2003; Santor, Poulin, LeBlanc, & Kusumakar, 2007). Determining how to successfully engage adolescents in primary care with behavior change programs on the Internet could both augment the influence of the primary care physician in encouraging pro-health behaviors in youth and also offer another approach for disseminating public health interventions.

Prevention of depression has become a world health priority, (Asarnow et al., 2005) and the low cost, accessibility, and privacy of the Internet make it an ideal dissemination modality (Bramesfeld, Platt, & Schwartz, 2006; Saxena, Jane-Llopis, & Hosman, 2006). We developed a primary care/Internet-based depression prevention intervention intended to reach the broad audience of adolescents in primary care with early depression symptoms who are at risk for progression to major depression as a model of such an approach. In our model, the primary care physician engages the adolescent with an Internet-based behavior change/resiliency building intervention (Project CATCH-IT, for Competent Adulthood Transition with Cognitive-behavioral and Interpersonal Training). We sought to recruit adolescents by screening in a public health model rather than by convenience sampling methods likely to recruit motivated volunteers (Verheijden et al., 2007).

Behavior change in Internet-based interventions are associated with longer and more consequential involvement with the website and also by endorsement of the website's personal relevance (Crutzen et al., 2008; Strecher, Shiffman, & West, 2006). To address the need to engage adolescents with varying levels of motivation, we grounded the intervention

in key principles of effective community based preventive interventions: sufficient dose, training, positive relationships, and socio-cultural relevance (Nation et al., 2003). In addition to the evidence that making Internet websites more engaging increases use (Danaher, Boles, Akers, Gordon, & Severson, 2006), we also believe that primary care physicians could play a critical role in preparing adolescents for participation in depression prevention behavior change interventions. Motivational interviewing (MI) is a patient-centered model focused on assisting the adolescent in developing an internal rationale for participation, while brief advice seeks to use physician authority to influence the patient (Miller & Rollnick, 2002). Brief advice (BA) is more commonly used in primary care and requires less time than MI.

We conducted a randomized controlled trial comparing MI + Internet program versus BA + Internet program. We have previously reported that participants in this study demonstrated declines in depressed mood and enhancement of protective factors during the study in both the brief advice and motivational interview groups (Van Voorhees et al, 2008, in press). However, the motivational interview group reported fewer depressive episodes diagnosed and treated. Similarly, we noted the MI group demonstrated greater levels of time spent on site (several measures) and characters typed in during the initial study (Van Voorhees et al., 2008, in press). However, we have not explored the effects of MI versus BA on all the key variables proposed by Nation (Nation et al., 2003), for effective community-based prevention, including impact on a full range of dose measures and impact on use of the Internet site after the initial study period. Our primary hypotheses are that a more patient-centered and lengthy primary care adolescent MI would be superior to a shorter, physician-centered BA in terms of a range of measures of dose (time, sessions, modules, and exercises) after each participant had been enrolled at least one year. Our secondary hypothesis is that website use would continue more than six months after enrollment. Our third hypothesis is that motivational interviewing would enhance ratings of other key domains including: physician relationships (understanding, motivation, discomfort, relationship), and the Internet training experience.

Methods

Participants

Adolescents ages 14–21 years were recruited from February 1, 2007 to November 31, 2007 both by direct primary care screening for risk of disorder (sub-threshold depressive symptoms) and by posted advertisements. We used a two-item screener for core symptoms of depressive disorder derived from the Patient Health Questionnaire Adolescent (PHQ-A). The PHQ-A uses Diagnostic and Statistical Manual IV criteria to determine diagnoses for common mental disorders (depressive, anxiety, substance abuse, and eating) and has been validated in primary care population by comparison to clinician diagnoses (Johnson, Harris, Spitzer, & Williams, 2002). Those reporting core depressive symptoms for at least two weeks for a few days or more were considered positive screens. If those with positive screens granted permission (and parents too if under age 18), study staff contacted them by phone to conduct an eligibility assessment, which included the full PHQ-A assessment. Eligibility criteria included being between the ages of 14–21 and experiencing persistent sub-threshold depressive symptoms at two separate assessments: both the screening and eligibility assessment (1–2 weeks after initial screening). Specifically, we defined sub-threshold symptoms as any core symptoms (depressed mood, loss of pleasure or irritability) for at least a “few days” in the last two weeks at that assessment. We excluded adolescents only if they were undergoing active treatment (within one year of treatment initiation) for major depression, met criteria for current major depression (≥ 5 symptoms, nearly every day and impairment (note: rural physicians could enroll individuals with borderline major depression), reported frequent suicidal ideation or actual intent, reported prior diagnosis of schizophrenia or bipolar disorder, had a pattern of conduct disorder behaviors, or met full

criteria for major depression, substance abuse, generalized anxiety, panic, or eating disorders based on the PHQ-A assessment criteria. There were 3 individuals with borderline major depression included at request of their PCPs who felt that they were appropriate for the study. Those adolescents with positive screens were consented by either study staff or the local principal investigator, enrolled in the study, randomized by sealed envelope, and assigned a private username and access code to allow entry to the Internet site.

Design

We conducted a randomized controlled trial comparing BA + Internet program (BA group) versus MI + Internet program (MI group) in 13 US primary care sites within five different health systems spanning four states (US Midwest and South). We pooled results from two randomized clinical trials conducted during the same time period. Both protocols employed identical recruiting methods, interview manuals/scripts, Internet-based programs, and data collection instruments during the same time period but varied in the degree of physician involvement. Practices could elect either to have their own physicians conduct the interview (n=10 practices) or to have the study principal investigator (primary care physician, n=3 practices) conduct the interview. We followed adolescents to evaluate their clinical outcomes by phone at 6 and 12 weeks and with a self-administered post-study questionnaire at 4–6 weeks. All protocols received Institutional Review Board approval.

Measures

The performance characteristics of the intervention including dose (time, sessions, modules, exercise completion), positive (physician) relationships (ease of use/experience, helpfulness/motivation, discomfort, engagement, and trust), training (ease of use, helpfulness/motivation, rationale/identification, discomfort), and socio-cultural relevance (satisfaction interview and Internet, cognitive behavioral psychotherapy and interpersonal psychotherapy helpfulness scales) (see Table 1). The outcomes data were collected from adolescents, evaluative ratings of perceived benefit from parents and physicians, and comments from all three groups in exit interviews 4–8 weeks after enrollment. We used data collected up until October 2008 from the Internet site so that each participant had access for at least 12 months after enrollment.

Procedures

We employed two methods: calling practices directly within health systems and recruiting physician leaders within health care systems to approach prospective practices. We employed a block randomization design (clinic and gender) and implemented it via sealed envelope selection. With regard to blinding, participants were told they were in either the “long” or “short” interview group. Participating physicians and office staff were trained in one of the two interviewing techniques during 1–2 hour lunch programs. The BA method utilizes a physician-centered approach in which the physician uses physician influence to explain the adolescent’s risk for depression, encourages the patient to visit the website and complete the intervention, and proposes a follow-up visit in 4–6 months to chart progress. The whole process takes 2–3 minutes and employs the “five As” (ask, advise, assess, assist, and arrange) to both educate the patient about depression and recommend a treatment modality. The MI method strives to assist the adolescent in creating an internal rationale for completing the Internet program (GUARDS: Goals, Understanding, Adolescent Risk, Depression, Self-efficacy). In this approach, the physician’s role is that of a facilitator guiding the adolescent’s own development of a favorable benefit/cost assessment. Adolescents in the MI group also received three motivational phone calls from a social worker that received training in MI. Audiotapes of physician interviews were obtained to ensure fidelity to the interview styles.

The intervention was constructed in accordance with Nation's (2003) principles of effective community-based prevention and included 14 modules centered on CBT (cognitive behavioral therapy) techniques such as behavioral activation and countering pessimistic thinking, interpersonal psychotherapy techniques such as activating social networks and strengthening relationship skills, and a community resiliency concept. The Internet program employed standard approaches to construct effective Internet learning experiences based on instructional design theory and vicarious learning whereby adolescents learned behavior-change concepts by reading about the experiences of peers using the desired techniques.

Statistical Analyses

We used analysis of variance (ANOVA) to compare continuous variables and Pearson Chi square (Fisher's exact for when < 5 observations/cell) to compare categorical variables. For continuous between-group data with non-normal distribution, we used the Mann-Whitney test. Stata Version 10.0 (College Station, TX, 2008) was used for all analyses.

Results

Sample Characteristics

We evaluated 116 adolescents for eligibility {13 were ineligible, 103 eligible (20 eligible but did not enroll)} and enrolled 83 in the study (81% enrollment rate). Follow-up data were available for 83/83 participants (100%), physician relationships on 61/84 (73%), training 57/83 (68%) and socio-cultural relevance 69/83 (83%). The study sample was diverse (56% female, 23% African American, 5% Hispanic, 6% Asian, and 4% other) with a mean age of 17.4 years (SD=2.14). Slightly more than half (55.7%, N=44) reported that their parents were married to one another. The mean household income for the zip codes of the participants according to the US Census 2000 was $40,249 (SD=14,500). There were no significant demographic differences between the two groups as has been previously reported (Van Voorhees, et al., 2008, in press).

Fidelity

MI fidelity was high with minimal contamination of MI approaches into the BA interview. MI model ratings in the MI group were M=4.5 (SD =0.83, out of a possible 5.0 score) while the BA interviews demonstrated low adherence to the MI model, and this comparison was statistically significant (M=1.02, SD=0.07, p=0.003). Similarly, the MI interviews were longer (M=5.96 minutes (SD=1.9) versus for BA of M=1.79 minutes (SD=0.45), p=0.003).

Dose

The MI group had significantly higher levels of engagement with the Internet site for nearly all measures than the BA group (Table 2). However, neither group appeared to visit the Internet site after in the six months following the initial report. There was a trend toward greater likelihood for having visited the site favoring the MI group. The MI group did demonstrate an advantage over the BA group in multiple measures of dose. This included 4 of 4 time measures were significant, 5 of 6 Internet session measures were significant or approached significance, 1 of 4 Internet site modules was significant, and 3 of 3 exercises were significant. Similarly, they reported significantly greater time in each module up until module 4 (Figure 2).

Physician Relationships

The MI group approached significance for higher levels of trust in their physician (p=0.056). All other items had similar responses (Table 3). Ratings of physician relationships were favorable in both groups

Training

There were no significant differences in training for the two groups from those who responded at follow-up (Table 4). Ratings for ease of use, helpfulness/motivation, rationale/identification, and discomfort were favorable in both groups.

Socio-cultural Relevance

The MI group had greater overall levels of satisfaction and also approached significance for overall satisfaction with physician interview (Table 5). PCP interview, Internet satisfaction interview, cognitive behavioral psychotherapy, and interpersonal psychotherapy helpfulness scales were favorable in both groups.

Missing Data

Data with regard to ratings was available for more than 71% of participants. Also, logistic regression analyses indicate that the probability of answering all questions relative to skipping at least one was not systematically correlated with the respondent's age, gender, ethnic background, baseline depressed mood (Center for Epidemiologic Studies Depression Scale) score or the assignment to either MI or BA group. These results further indicate that the analysis of variance using only the sample with full responses does not suffer from sample attrition bias.

Discussion

Adolescents were successfully engaged in primary care with a health behavior change Internet website. A patient-centered approach of motivational interviewing demonstrated superiority over brief advice in nearly all measures of dose which supported hypothesis one. Also, the motivational interviewing groups had superior scores in one aspect of positive relationships (trust) and socio-cultural relevance (greater levels of satisfaction with the Internet program) but not training which offers support for hypothesis three. However, hypothesis two was not supported, as participants regardless of group did not continue to use the Internet-based intervention website after the study ended.

The primary care physician motivational interviewing enhancement across a full range of dose measures for an Internet behavior change intervention is a new finding. Previously, only enhancing on-line interaction (social interaction and other responses) or reminder systems had demonstrated increased Internet intervention use (Danaher et al., 2006; Santor et al., 2007). Also, all participants in this study were more likely to visit (MI: 90%, BA: 78%) the Internet program than those in a school based study of a wellness-oriented site (27%) or in surveys of adolescents (18%) (Gould, Munfakh, Lubell, Kleinman, & Parker, 2002; Santor et al., 2007). Similarly, adolescents in this study reported a greater number of sessions (MI: 9.52, BA: 7.52) than enrollment without reminders (2.6), telephone reminders (5.6), and mail reminder (5.9) than a study of adults enrolled in a health maintenance organization based trial of an Internet depression treatment intervention (Danaher et al., 2006). Similarly, this study demonstrated a greater likelihood of posting a response to questions (MI: 88%, BA: 61%) than that seen in a highly engaging smoking cessation program (38%) (Danaher et al., 2006). Session length (15 minutes) and the choice of day and evening hours as the predominant time (95% of sessions) to interact with the Internet site was similar to prior studies (19 minutes and 98%) (Wantland, Portillo, Holzemer, Slaughter, & McGhee, 2004b; Santor et al., 2007). The effects of the MI may fade after module four and the lack of continued use of the Internet site by either group suggests a "fade out" effect of this primary care intervention after 1–2 months.

The effect of motivational interviewing on dose is consistent with prior work demonstrating modest effect sizes for behavior change in primary care (Bower & Rowland, 2006). However, we are not aware of any other study which sought to influence primary care patients' participation in an Internet intervention. The mechanisms by which motivational interviewing may have enhanced participation may be via attitudes and beliefs toward the intervention and enhancement of perceived need for intervention, both of which may influence site use (Crutzen et al., 2008; Santor, et al., 2007) Conversely, that even adolescents in the BA group substantially used the Internet site may suggest a halo effect, that is, accumulated prior impressions or greater trust experiences with this physician extended into the Internet experience (Bower & Rowland, 2006).

Self-determination theory may help interpret these results in relationship to the relative short duration of both interviews (BA: 2 minutes and MI: 6 minutes) and modest difference between them in terms of time. Self-determination theory states that individuals have needs for competence, autonomy, and relatedness. This self-determination framework may suggest that the MI techniques, in addition to the greater duration of contact, strengthened intention to participate by enhancing the quality of motivation by satisfying these needs and thereby promoting greater "internalization" of motivation (Vansteenkiste & Sheldon, 2006). However, need for autonomy may vary from person to person. Consequently, it is also possible that "autonomy need" may have interacted with the randomization scheme. Resnicow and colleagues have demonstrated that those with low autonomy preference/need respond as well to directive (BA) as to autonomy enhancing health messages in terms of behavior change. Consequently, the substantial participation levels in the BA group may reflect the tendency of many to respond favorably to "authority-based" recommendations (Resnicow et al., 2008).

Participant ratings of relationships related to training for Internet interventions to our knowledge have not been reported. Enhancement of physician trust has not been reported for a primary care motivational interviewing intervention but is consistent with observational studies correlating patient-centered approaches with higher satisfaction and trust (Beck, Daughtridge, & Sloane, 2002; Fiscella et al., 2004). With regard to training, ratings were similar to process ratings for smoking cessation (personally relevant M=3.4 (SD=0.6) with a 1–4 Likert scale versus M=3.76 (SD=0.89) with a 1–5 Likert Scale for our CATCH-IT for identification and relevance. Satisfaction ratings were similar to those reported for an adolescent wellness site (M=4.12 (SD=0.63) (1–5 Likert Scale, Yoomagazine) (Santor et al., 2007) and eating disorder psycho-education (M=4.21 (SD=0.64) (Zabinski, Wilfley, Pung, Winzelberg, & Eldrege, 2001) versus M=7.33 (SD=2.13) for CATCH-IT.

The greatest strength of this study is fielding a novel approach in actual practice settings. With regard to internal validity, the primary dose outcomes were collected via monitoring of computer and are unlikely to be the subject of bias, and greater than 71% completed ratings. The study sample, while small, was roughly representative of the US adolescent proportion (European American 61% versus 62.5% in US population) and with equal gender distribution (University of California, 2003). Similarly, the mean zip code income was similar to the US $40,249 for the sample versus $41,994 for the US (2000 census) and proportion of adolescents living with their biological parents (55.7% versus 52% for the entire US) (University of California, 2003).

There are several important limitations to consider. The manner of selecting practitioners into the study may have resulted in recruitment of clinicians more favorably disposed to successful implementation of psychosocial interventions. These physicians may have been strongly invested in the outcome of the intervention based on financial incentives and recommendation by respected peers and also be more interested in psycho-social

interventions than most PCPs. Also, adolescents in this study may have been more motivated than the typical adolescent to engage in an Internet-based depression prevention intervention. However, the short nature of the interviews suggests that the general experience of the interview was not outside the boundaries of a typical PCP/adolescent enounter. This sample size is relatively small, further limiting our abililty to draw inferences.

In conclusion, practitioners, investigators, and health policy planners have often not considered Internet-based behavior change. This study suggests that a relatively brief and inexpensive intervention will suffice to engage youth with such an intervention at greater levels than simple referral and that a patient-centered interviewing technique may substantially increase engagement even further. However, while primary care engagement with a motivational interview may be effective, booster doses or additional Internet features may be required to sustain the attention of the adolescents longer than 1–2 months. Interventionists may wish to consider multiple points of entry to Internet-based wellness and health promotion interventions whereby schools, primary care practices, youth organizations, religious, and communal organizations may engage youth with common Internet-based programs. Physicians should recognize that Internet-based intervention requires determination and persistence on the part of patients and physicians can have an important influence in this process. Policy makers may wish to consider the value of physicians' time in influencing use of health promotion interventions.

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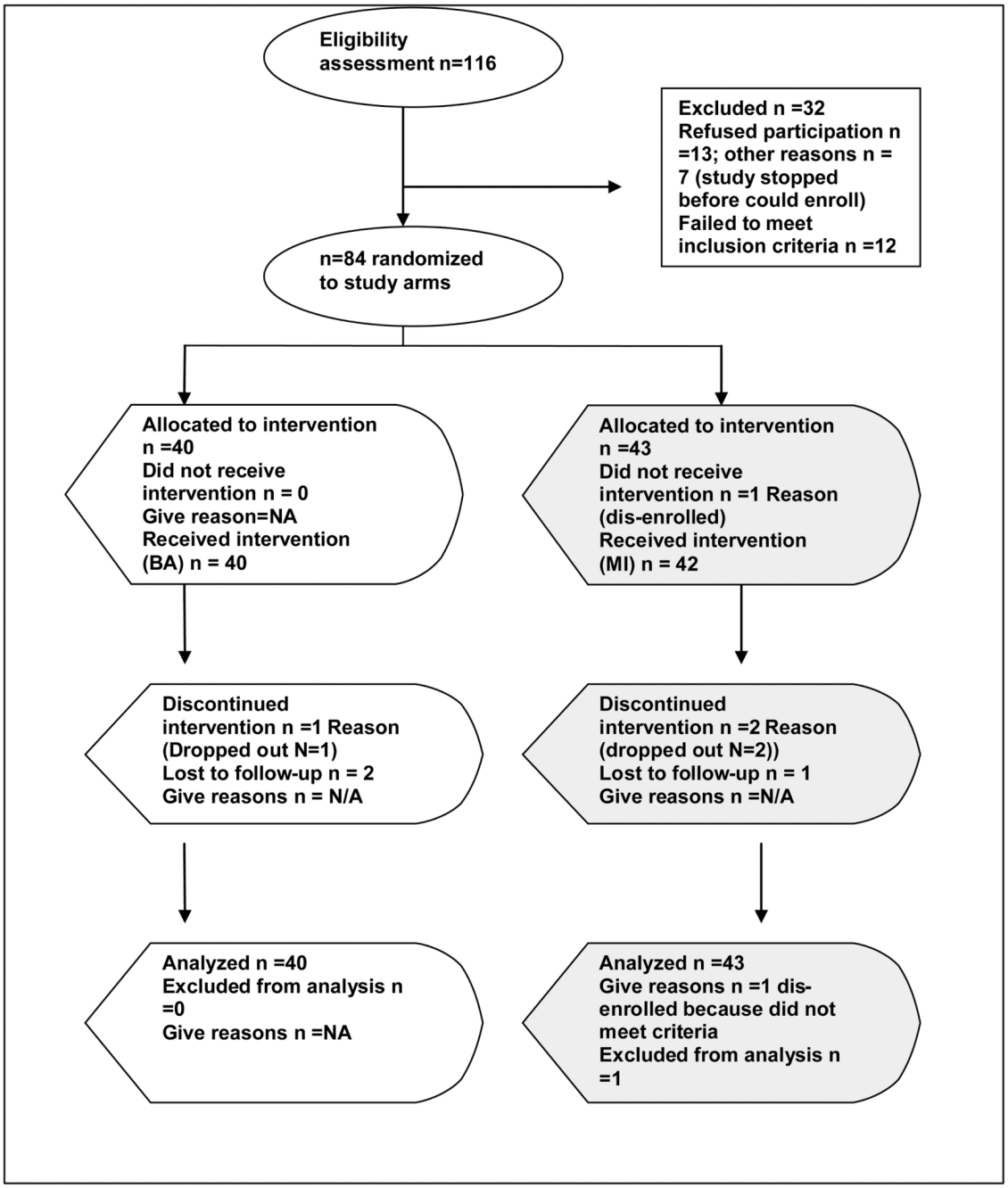

Figure 1.
Consort Diagram

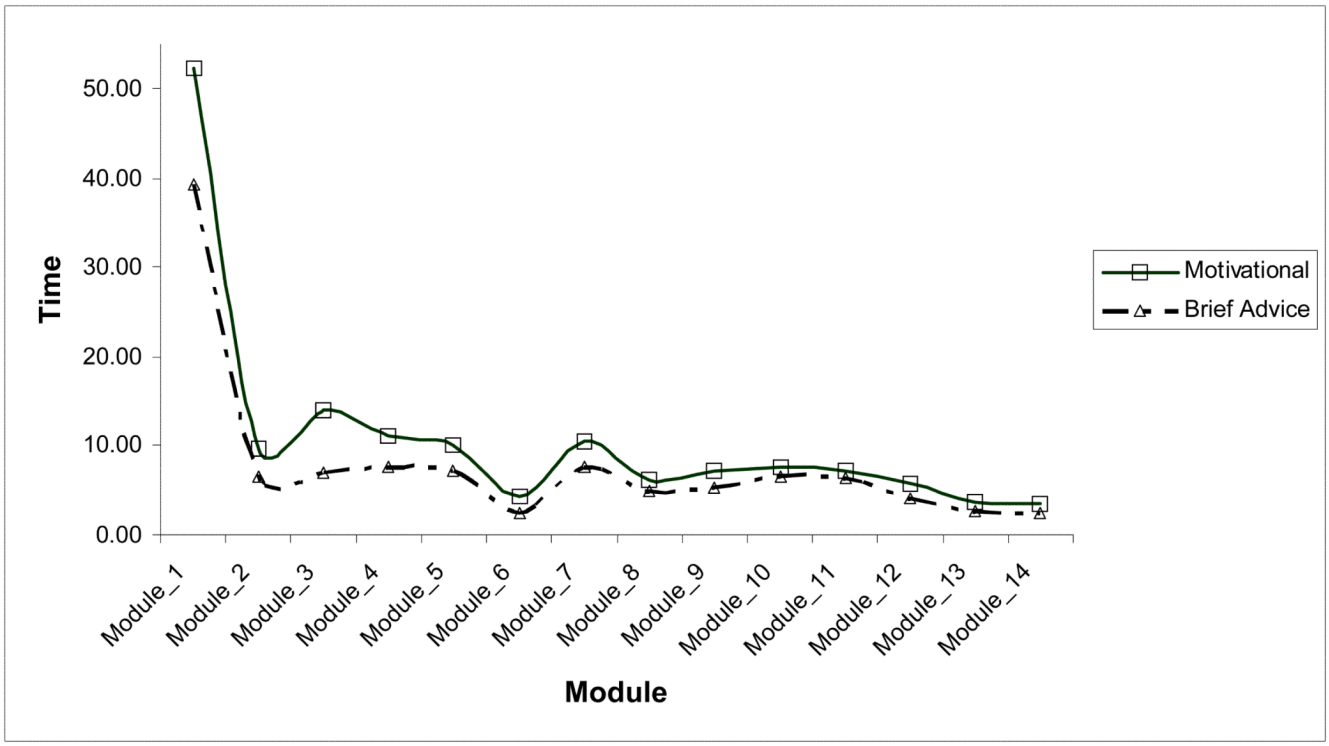

Figure 2.
Time on each module by group

Table 1

Outcome Variables

Category	Item	Construction/response
Dose		
Time	Total time on site and for each module step and section	Time collected in 6 second increments for total time and time on each major section (e.g. interpersonal psychotherapy)
Sessions	Total number of sessions, session/day time period and modules completed	Logons monitored. Sessions and module considered completed if one exercise done
Modules	Percentage visiting site (one module), number modules visited, number modules completed(completed at least one exercise) and percentage completing ≥ 7 modules	Logons monitored. Sessions and module considered completed if one exercise done
Exercise completion	Number of exercises completed and degree to which participants completed exercises	Reported as percentage of exercises completed and total number of characters typed in
Physician Relationships		
Ease of use/experience	The physician was easy to understand.	Likert scale of 1–5 (strongly disagree to strongly agree)
Helpfulness/motivation	It was helpful to review the exercises with the physician. I am more likely to change behaviors or thought patterns because of the interview with the doctor.	Likert scale of 1–5 (strongly disagree to strongly agree)
Discomfort	The physician asking me to discuss my exercises made me feel uncomfortable. Talking about my negative thoughts or relationship problems made me feel sad.	Likert scale of 1–5 (strongly disagree to strongly agree)
Engagement	I feel I was able to participate in the interviews with the physician. I feel the physician was truly concerned about me.	Likert scale of 1–5 (strongly disagree to strongly agree)
Trust	I trust my physician.	Likert scale 1–5 (strongly disagree to strongly agree)
Training		
Ease of Use	This module was easy to read. This module was easy to understand	Likert scale of 1–5 (strongly disagree to strongly agree)
Helpfulness/Motivation	I found this module helpful. The introduction made me want to complete the program.	Likert scale 1–5 (strongly disagree to strongly agree)
Rationale/Identification	The lessons in the module ‘made sense’ to me. This module struck a chord with my own life. One of the story examples struck a chord with my own life.	Likert scale 1–5 (strongly disagree to strongly agree)
Discomfort	This module brought up sad or angry feelings for me.	Likert scale 1–5 (strongly disagree to strongly agree)
Socio-cultural Relevance		
Satisfaction-interview	Satisfaction with physician interview	Likert scale 1–5 (strongly disagree to strongly agree)
Satisfaction - Internet	I would recommend this program to a friend who could develop depression My overall rating for the usefulness of this program for young people my age who might become depressed is…	Likert scale of 1–10 (very unhelpful to very helpful)
Cognitive Behavioral Psychotherapy (CBT) Helpfulness scale(Zabinski et al., 2001) (alpha=0.90)	Changed my behavior in ways that have improved my mood. Kept negative unrealistic attitudes about myself from making me feel depressed. Challenged negative thought patterns about myself. Challenged negative thought patterns about everyday situation and problems	Likert scale of 1–10 (very unhelpful to very helpful)

Category	Item	Construction/response
Interpersonal Psychotherapy (IPT) Helpfulness scale(Zabinski et al., 2001) (alpha=0.84)	Peer Relations (adolescent ratings) Express my feelings and reactions to important people in my life. Cope with transitions in my life. Solve relationship problems..	Likert scale of 1–10 (very unhelpful to very helpful)

Table 2

Intervention Dose

		MI		BA				
	N	Mean(%)	SD/(N)	Mean (%)	SD/(N)	P-value	Effect Size	95% CI Effect Size
Internet time								
Total time on site	83	145.08	109.08	98.41	124.68	0.02	0.40	−0.04, 0.83
Time spent on stories	83	14.36	16.47	9.45	16.03	0.01	0.30	−0.13, 0.73
Time spent on rewards pages	83	7.66	9.21	4.64	6.86	0.02	0.37	−0.07, 0.80
Time on module surveys	83	39.33	32.42	20.81	25.93	0.01	0.63	0.18, 1.06
Internet sessions								
Duration (days)	82	58.07	85.98	28.25	64.50	0.01	0.39	−0.05, 0.82
Total number of sessions	82	8.93	7.64	5.68	7.16	0.02	0.44	0.00, 0.87
Time per session	82	17.63	14.36	14.10	12.90	0.18	0.26	−0.18, 0.69
Number session 8-4	82	3.51	3.52	2.33	3.21	0.02	0.35	−0.09, 0.78
Number session 4–12	82	4.77	4.97	3.13	5.19	0.02	0.91	0.45, 1.36
Number session 12-8	82	0.65	1.13	0.23	0.62	0.05	0.46	0.02, 0.89
Internet site Modules								
Visited the Internet site	83	{43}	{97.67)	{40)	{90.00}	0.15	N/A	N/A, N/A
Number modules visited	83	{43}	{90.70}	{40}	{77.50}	0.11	N/A	N/A, N/A
Number modules completed	83	7.86	5.55	5.55	6.06	0.04	0.40	−0.04, 0.83
Percentage completing 50% modules (< 7 modules)	83	0.51	0.51	0.38	0.49	0.21	0.27	−0.16, 0.70
Exercises								
Posted any response	62	{38}	{88.37}	{24}	{60.0}	<.001	N/A	N/A, N/A
Mean number of characters typed in	83	3580.02	2965.77	1915.90	2326.00	<.001	0.62	0.18, 1.06
Percentage of module surveys questions answered	83	0.55	0.40	0.39	0.43	0.04	0.39	−0.05, 0.82

Table 3

Positive Relationships (Physician)

		MI		BA				
	N	**Mean**	**SD**	**Mean**	**SD**	**P-value**	**Effect Size**	**95% CI Effect Size**
Ease of use/experience								
The physician was easy to understand	60	4.18	1.06	4.15	0.83	0.58	0.02	−0.49, 0.53
Helpfulness/motivation								
It was helpful to review the exercises with the physician	61	3.89	1.05	3.73	1.00	0.45	0.15	−0.36, 0.66
It was helpful to focus on behaviors I would like to change	61	4.00	1.02	4.11	0.75	0.94	−0.12	−0.63, 0.39
I am more likely to change behaviors or thought patterns due to interview	61	3.62	1.16	3.93	0.78	0.42	−0.31	−0.81, 0.21
Discomfort								
Talking about my negative thoughts or relationship problems made me feel sad	59	2.52	1.41	2.32	1.12	0.87	0.15	−0.36, 0.66
The physicians asking me to discuss my exercises made me feel uncomfortable.	61	2.71	1.38	2.30	1.20	0.27	0.31	−0.20, 0.82
Engagement								
I feel I was able to participate in the interviews with the physician.	61	3.71	1.09	3.41	1.12	0.30	0.27	−0.24, 0.77
I feel the physician was truly concerned about me.	60	3.88	1.07	3.81	0.85	0.77	0.08	−0.44, 0.59
Trust								
I trust my physician	65	4.18	0.76	3.74	0.96	0.06	0.50	0.00, 0.99
Physician scale	69	2.38	0.92	2.31	0.99	0.62	0.06	−0.41, 0.54

Table 4

Training

		MI		BA				
	N	**Mean**	**SD**	**Mean**	**SD**	**P-value**	**Effect Size**	**95% CI Effect Size**
Ease of use								
Ease of Reading (all modules, minimum on response	61	4.29	0.52	4.02	1.13	0.91	0.34	−0.19, 0.85
Ease of understanding	61	4.20	0.49	3.98	1.10	0.88	0.29	−.24, 0.80
Ease of use	61	4.05	0.56	4.04	0.82	0.61	0.02	−0.50, 0.54
Helpfulness/motivation								
Helpfulness	61	3.88	0.67	3.69	0.97	0.33	0.27	−0.26, 0.78
Motivation	61	3.92	0.72	3.67	1.03	0.45	0.29	−0.23, 0.81
Rationale/Identification								
Internal Rationale	61	3.90	0.68	3.96	1.08	0.76	0.29	−0.24, 0.80
Identification/relevance lesson	61	4.19	0.55	3.77	1.00	0.24	−0.10	−0.62, 0.42
Identification-Story	61	3.69	0.70	3.40	1.01	0.99	0.02	−0.50, 0.54
Discomfort								
Sad and Angry Feelings	47	0.86	0.84	1	0.90	0.60	−0.16	−0.74, 0.43

Table 5

Socio-Cultural Relevance

		MI		BA				
	N	**Mean**	**SD**	**Mean**	**SD**	**P-value**	**Effect Size**	**95% CI Effect Size**
PCP interview								
Overall satisfaction with the interview component	62	7.80	2.04	7.33	2.60	0.62	0.20	−0.30, 0.70
Overall satisfaction with the Physician-Interviewer(how he talked to you)	62	8.19	2.23	7.58	2.16	0.16	0.28	−0.23, 0.78
Overall satisfaction with the Physician-Interviewer(what you discussed)	65	8.44	1.87	7.45	2.34	0.06	0.48	−0.03, 0.97
Internet Interventions								
Overall satisfaction with the Web-based Program.	69	7.92	1.72	7.92	1.75	0.02	0.62	0.12, 1.09
I would recommend this program to a friend who could develop depression	69	8.65	1.57	7.75	2.54	0.23	2.39	1.75, 2.98
Coping skills helpfulness scale								
Cognitive Behavioral Helpfulness Scale (CBT)	83	6.20	3.08	5.56	3.21	0.24	0.21	−0.23, 0.64
Interpersonal Helpfulness Scale (IPT)	83	6.30	3.07	5.59	3.22	0.24	0.23	−0.10, 0.55